

OS/2 WARP SERVER PRESENTATION

TITLE PAGE

OS/2 WARP SERVER - Tell them what you are going to tell them!

Today you are going to here a presentation about an exciting new product, currently scheduled to announce on February 26th, OS/2 Warp Server. With OS/2 Warp Server we have redefined (given new meaning) what a server operating system is and should be in order to address the changing needs of the server market place. You will see how we have raised the bar on our competitors and have set new standards for server operating system offerings. OS/2 Warp Server is the complete application server platform solution for any size business.

AGENDA

Here is the agenda of what we are going to cover. We are going to talk to you about the shift in the server operating system market place and how we are positioned to provide you with a solution to address the shift. We will look how the shift in the server market place has changed the key requirements for a server operating system. We will then see how OS/2 Warp Server is addressing those requirements by examining it's contents in quite a bit of detail. We will talk about how we are positioning OS/2 Warp Server, the new pricing strategy, available education and support and finally how we stack up against the competition.

MARKET CONDITIONS

SERVER OPERATING SYSTEM MARKET SHIFT

We have an excellent file and print solution today in LAN Server 4.0. The market is demanding more from it's server's than just simple file and print. Basic file and print is becoming a commodity. IDC Statistics show us the server operating system market growth is shifting from basic file and print servers to application servers. The Compound growth rate (CGR) of the application server market is 3X greater than the file and print server market. Not only is there a shift in the server operating system market, the total market itself is growing.

SERVER OPERATING MARKET GROWTH

IBM has demonstrated consistent growth over the previous three years and we're projecting 1996 to be the best year ever. We will start out this year with the announcement of OS/2 Warp Server, a complete server operating system solution for which we have received very favorable remarks from the press, consultants, analysts, and excellent customer acceptance and feedback. Later on in the year we will announce enhancements to our client offerings.

This chart shows how IBM has and will continued to grow with the industry in terms of both file and print servers, and application servers. In 1995 we had a 33% growth in the number of application server licenses installed and a 28% growth in the file and print or resource sharing. These number reflect new licenses and does not reflect upgrades, trials, etc.

IBM is the number 1 application server operating system platform provider in the market place today and the number 2 file and print server operating system provider. These are the building blocks, the foundation for OS/2 Warp Server.

WORLD WIDE SERVER OPERATING SYSTEM

When we take a look at the server operating system market share, IBM holds the second largest market share behind Novell. This is the same position we hold in the file and print market share, we are number two behind Novell. The other NOS number is representative of older LAN operating systems (PC LAN Program, LAN Manager, etc.). The All UNIX number represents all other UNIX providers combined.

SERVER REQUIREMENTS

COST OF SYSTEMS MANAGEMENT

The shift and growth in the server market has increased the complexity of the networks (mixed environments both hardware and software, multiple protocols, etc.), and increased the demands placed on the servers (consolidation, application serving, specialized function, etc.). With all the down sizing and right sizing, the LAN has become the system. Support personnel require greater skills, problem source identification is taking longer due to multiple vendor offerings, asset management (hardware and software inventory) is non existent in most cases, keeping up with software upgrades has become a full time job, and recovering from system outages becomes more critical (critical data residing on server). These all contribute to the rising cost of managing networks, the true cost of ownership. Statistics show us over half of the cost to support a user on the network are administration or management cost.

SYSTEMS MANAGEMENT REQUIREMENTS

How do we simplify the task of managing these growing server networks. A survey was done at Network World of network support groups. This survey revealed the following as the key requirement for simplifying the administration and management of networks. These are the key features to reduce the cost of ownership. OS/2 Warp Server will address these and other requirements.

CUSTOMER VIEW - SOLUTION ORIENTED

In order to address these requirements, there are many products to choose from in the market place today. We understand that you don't want products, you want solutions that address real business needs and effect the bottom line, cost. We have taken a position of leadership by integrating offerings from IBM into a single integrated server operating system solution that will address the changing market and systems management requirements, OS/2 Warp Server.

IBM OS/2 WARP SERVER CONTENTS

IBM OS/2 WARP SERVER CD-ROM 1

OS/2 Warp Server is an integrated solution built on a robust 32-bit operating system, offering File and Print Services for resource sharing. We have incorporated Advanced Printing capabilities to enhance network printing and System Management Services providing the function to simplify network management. Backup and Recovery Services are included to protect data and enable you to recover from disasters and manage the data. Remote Access Services have been incorporated to facilitate remote or mobile network users. We have enhanced our TCP/IP offering with DHCP and DDNS, which simplify establishing an IP network.

The OS/2 Warp Server solution addresses the shift in the market place providing a robust application server platform, a solution incorporating features to address the requirements to support the networks of today and tomorrow. We have done the system integration work for you, these components have been tested together. Yet, we have provided flexibility, you install the components you need, you decide. For instance if you have a backup product, keep it and don't install the backup component of OS/2 Warp Server.

Most importantly, not only is OS/2 Warp Server built on OPEN standards, it is open in that it will work with what you have installed today, adds value to your existing network.

IBM OS/2 WARP SERVER CD-ROM 2

Also included in OS/2 Warp Server are a number of tools and functions designed to make life a little easier. They are:

Novell NetWare to IBM LAN Server Migration Utility - The NetWare to LAN Server Migration Utility assists users wishing to migrate from a NetWare 2.x or 3.x NOS to IBM's 32-bit OS/2 LAN Server 3.0, 4.0 and Warp Server. It allows users to migrate as much or as little information as desired. Moreover, resources added to the LAN Server can be defined as aliases long before the actual migration takes place. Users and groups and their descriptions can be migrated, and access rights will be at least equivalent to those defined on the NetWare server. There are two migration paths. The first is nondestructive which will allow you to setup a test environment without affecting your production NetWare file server. The second offers you the capability to directly migrate an existing NetWare file server when additional hardware is not available for more robust testing.

MarkVision by Lexmark International, Inc. and HP JetAdmin by Hewlett-Packard (HP) - enables you to easily install, configure, query, and troubleshoot network-attached Lexmark and HP printers from your OS/2 Warp desktop. MarkVision and JetAdmin are fully integrated with OS/2 Warp, the Enhanced OS/2 Warp Spooler, and the OS/2 File and Print Sharing Services. This integration provides users with a standard view of printer and job status through the OS/2 printer object in the OS/2 Workplace Shell. Furthermore, MarkVision and JetAdmin are Workplace Shell applications which are launched from the OS/2 printer object. This provides a consistent "look and feel" which significantly enhances the usability of the solution. This solution allows you to:

- Support Lexmark and HP network-attached printers connected using Token-Ring or Ethernet.
- See the actual status of print jobs (Job spooling, sending job to printer, job in printer, printing).
- All users receive true end-of-job notification. No more wasted trips to the printer!
- See the actual status of the printer (out of paper, cover open, paper tray missing).
- Remotely monitor, configure, and manage your network-attached printers.
- Reduce network traffic by centralizing control and setup of your network-attached printers on an OS/2 Warp Server print server. You can also control access to your network-attached printers by using OS/2 Warp Server's security services.
- View the capabilities of your network-attached printers.
- Assign up to 32 HP network-attached printers. Lexmark has no predetermined limit for the number of network-attached printers per server. However, for performance reasons, it is recommended that printers be distributed evenly amongst the available servers in the network.
- Manage your network-attached printers using IBM's NetView.

HP JETADMIN (ONLY)

- Restart your print job after the last page successfully printed in the event of a printer error. This saves valuable printer resources, such as paper and toner, and speeds throughput since users do not wait for a large print job to be completely re-printed.
- Specify a range of pages to print in a print-ready document. For example, submit a 100 page Postscript file to print and then choose to only print pages 10-20 rather than the entire document.
- Conveniently access and setup network ports for HP network-attached printers from the OS/2 printer object.

HP JetAdmin features vary depending on the level of functionality of the HP JetDirect print server or the peripheral devices.

LEXMARK MARKVISION (ONLY)

- Collect, store and view a summary of job statistics information for any job printed on your Lexmark Optra Laser Printer including:
 - ♦ Number of pages per job, time and date the job completed, user and workstation that submitted the job, number of duplexed pages vs. simplex pages, and much more!

- View printer statistics (User controlled page count, page count since last power on reset (POR), page count for life of printer).
- Conveniently access and setup network printer ports for Lexmark network-attached printers from the OS/2 printer object.

MarkVision provides all of its status monitoring capabilities without polling the printer. Since the printer initiates the alert message to the host where MarkVision is running, network traffic is kept to an absolute minimum. This is done by using an industry developed protocol standard, IEEE P1284.1, sometimes referred to as the Network Printing Alliance Protocol (NPAP). Lexmark is one of the founding members of this alliance. MarkVision supports the Lexmark Optra Family and 4039 plus family of printers attached to MarkNet XL or XLe network adapters.

In summary, both of these solutions make you more productive by giving you the tools to remotely manage network-attached printers from your OS/2 Warp desktop. You no longer must go to the printer or print server to determine status or to isolate problems. Users increase their productivity by receiving printer and job status on their OS/2 Warp desktop.

ASKPSP - OS/2 Warp Server comes with its own built-in Help Desk. ASKPSP is an expert system that can answer many of the more frequently encountered questions and problems that you may run into when using your workstation in the OS/2 Warp Server environment for the first time. This will aid learning and save you much time. You pose the question; it may come back for additional information to narrow the possibilities; and it provides you with possible solutions. Support is provided for, OS/2 Warp 3.0, File and Print Sharing Services, Remote Access Services, Advanced print services, TCP/IP Services, Adapters and Protocols Services and Backup and Recovery Services.

SystemView Agent - OS/2 Warp Server provides a SystemView Agent which conforms to the Desktop Management Interface (DMI) to allow SNMP management of DMI-compliant hardware and software components. Specific sub-agents are included to allow the management of: IBM OS/2 (including OS/2 Warp); IBM Communications Manager/2; IBM OS/2 LAN Server (Versions 3.0 and 4.0), and LAN Requester/2; and IBM DB2/2. Components may be managed by any SNMP management platform such as IBM's SystemView for AIX.

Mobile File Sync (MFS) - is a client-mode utility which was first distributed with the AttachPak for OS/2 Warp Connect and has now been updated to improve its performance. It enables client users to physically disconnect from the server and still have access to their (stored) Server files. Users can read or modify existing files, create new files or directories, or delete existing ones. Reconnection to the server automatically updates the server. It provides extensive conflict detection and resolution of any files changed on the server or the client.

Software Registration

IBM would very much like you to register yourself with us as a OS/2 Warp Server user so that we may better serve you as developments occur. Accordingly we have included a registration tool to facilitate this action. At initial install, or at your convenience later if desired, you are encouraged to send us appropriate details of yourself and your organization. You are given the options of registering directly using a modem, or by responding by telephone, fax, or mail.

OS/2 WARP BASE OPERATING SYSTEM

OS/2 Warp Server's wide-ranging functionality derived from many components (which in previous environments represented individual products with individual installations). All the major functions have been combined within a single newly-designed install shell which presents a consistent approach. It is targeted for the novice or experienced user. The installation program was specifically designed to facilitate an easy install of OS/2 Warp Server despite the complexity implied by the sheer number of it's components.

OS/2 Warp is an advanced, proven, reliable, third generation, award winning, 32-bit operating system that provides excellent support for running 16-bit and 32-bit OS/2 , DOS, and Windows applications. The application server platform of choice providing a drag and drop graphical user interface (GUI), memory protection for critical applications and common API's across the client/server product family offerings. An operating system built on OPEN industry standards to support choice and compatibility with other vendor products.

OS/2 Warp was enhanced to support bi-directional printers (BIDI), which are capable of reporting status back to the server.

FILE AND PRINT

File and Print Services are based on IBM OS/2 LAN Server 4.0 which won industry acclaim and Network Interop '94s Network Operating System (NOS) "Best-of-Show" award, in part due to its new administrative Graphical User Interface and its record breaking performance. Both are carried forward to OS/2 Warp Server.

By using the workplace shell paradigm (drag and drop administration) the GUI interface reduces the time necessary to administer the LAN, and simplifies the process so that it is natural even for non-LAN personnel. Aliases give you the capability to assign nicknames to server resources which enable you to move server resources without changing user definitions. OS/2 Warp Server resources are dynamically allocated to users at login.

The Object Oriented GUI, the LAN administration interface to LAN Server, has been further extended to allow the support for thousands of aliases. OS/2 Warp Server supports existing industry applications and legacy. Significant enhancements have been made to the File and Print services offering a 14% performance improvement over LAN Server 4.0.

ADVANCED PRINTING

Advanced Print Services, based on the IBM PSF/2 program product, brings host-like printer support to the LAN; including support for Postscript documents on selected non-Postscript printers.

In detail advanced print services provides the following capabilities:

- Support for up to 16 printers simultaneously, ranging from 4 to 300 impressions per minute.
- Seamlessly print output on a variety of printers connected to the Server, including AFP printers, HP LaserJet, and compatible printers.
- Support for the most popular input application data streams including Postscript, HP-PCL, and AFP.
- Convert Postscript Level 1 + 2 into PCL for printing on native PCL printers (no Postscript support required in printer). Take advantage of new Postscript level 2 applications without upgrading your printers!
- Convert Postscript Level 1 + 2 or PCL for printing on native AFP printers with error recovery. Since Postscript processing is done by advanced print services, not in the printer, it will print most Postscript files faster on a non-Postscript printer, versus using a Postscript printer, saving time and money.
- Print Postscript and PCL documents at speeds up to 300 ppm on AFP printers.
- Change printers without changing the print driver.
- Fully manage jobs sent from OS/2 and DOS/Windows workstations.
- The AFP data stream is the defacto standard data stream for high speed printing and is supported by most high speed printer vendors. AFP is a highly efficient, multi-use data stream, providing a single file format for printing, viewing, and archiving. Users will realize 5x and more file size reduction with many applications when compared to Postscript or PCL. OS/2 Warp Server is the only PC server that fully supports AFP and provides utilities to easily create AFP print files from your existing applications.
- Take advantage of the advanced AFP job management capabilities such as accounting, auditing, and page-level error recovery. Advanced Print Services provides the most complete set of error recovery and printer resource management capabilities available.
- With appropriate SNA host connections, submit from LAN workstations, print jobs in Postscript, HP-PCL, or AFP for printing on remote 390 MVS and VM AFP attached printers.

It also supports Postscript, HP-PCL, and HP-PGL files in pass-through mode, permitting end users to send all print files to a single printer destination. An administrator can configure Advanced Print Services to reroute jobs directly to the proper local queue or port and avoid unnecessary processing when the application data stream is supported by the printer. Note that Postscript printers are only supported in pass-through mode. An administrator can select a "none" device type for sending print files to queues not assigned to a printer. For example, a job can be converted from Postscript to AFP using this capability.

SYSTEMS MANAGEMENT

A comprehensive set of features for performing essential business, change, configuration, operations, performance and problem management task all in one package. A single point of control from an OS/2 workstation for managing your distributed system environment (does not support manager-to-manager, or manager-of-managers function). Investment protection of your existing IBM and non-IBM hardware and software. Facilities for sharing and protecting information in an heterogeneous and distributed environment. In detail, the following functions are available for OS/2 2.1 (or later) and Windows 3.1:

Systems management is provided by the wide-ranging functionality of SystemView for OS/2 part of the IBM SystemView family of products spanning most platforms. A comprehensive set of systems management function for the PC environment is provided to help lower the cost of systems ownership through key functions such as:

- Network Workstation Discovery - Automatically discover networked workstations and organize them into logical groups to help simplify management tasks.
- Workstation Hardware Inventory - Detect and report detailed information of a wide variety of systems, including adapters, SCSI devices, disk drives, memory, I/O devices and more. Log this data into a flat file, DB/2 or Lotus Notes database.
- Workstation Software Inventory - Discover and collect software information on a system.
- Workstation Monitoring - View statistics on workstation performance, status, threshold settings and monitoring activities. Trigger alert from changes to workstation hardware, predictive failure analysis of hardware problems, and other conditions.
- Remote Workstation Control - Controls or monitors workstations remotely, view/edit system files transfer files and execute programs.
- Scheduling - Free up your busy system administrator by scheduling events such as software distribution, system reboot, and inventory during off hours to minimize disruption, system downtime and lost user productivity.
- Security - Control each remote workstation "service" individually by a userid and password.
- Alert Manager - Process alerts locally on the workstation where the alert was generated or centrally at the manager. Automatically execute a command or script, log the alert, pop up a message, convert the alert to an SNMP trap, or
- forward the alert to another manager.

- System Profile - Enter administrative information, such as name of workstation user, phone number, and department to be entered about each network workstation.
- License Management - Ensure compliance with software Licensing agreement according to the established company policy. Provide the means to monitor and control use of license-enabled (that have been enabled for License Use Management) applications.
- Software Distribution - Distribute and install both CID and non-CID enabled applications. CID is an IBM-specified way to install and configure products on, or remove products from, remote workstations and hosts while keeping at minimum user interactions with the product.
- Software Distribution Preparation - Easy-to-use interface for CID response file and packages preparation.
- Application Sharing - Access information easily on software packages and to applications server.

SYSTEMS MANAGEMENT COMPATIBILITY

NETFINITY 3.0

Migration: When OS/2 Warp Server is installed on a workstation where NetFinity Manager is already installed, all the customization (security, grouping, alerts,...) are migrated. The same happens installing OS/2 Warp Server Client on a workstation where NetFinity Services for OS/2 or for Windows are installed.

Interaction: OS/2 Warp Server can access NetFinity Manager and NetFinity Services running on OS/2, Windows and NetWare platforms. It can receive data from them and send data to them.

Coexistence: OS/2 Warp Server can NOT coexist in the same workstation where NetFinity is installed (since the migration is performed).

NETVIEW DISTRIBUTION MANAGER

Migration: No migration path is provided from any of the NetView DM Family products to OS/2 Warp Server. For those customers that have a NetView DM solution already implemented we recommend to either wait for SystemView Server or to install OS/2 Warp Server without the SW Distribution feature.

Interaction: OS/2 Warp Server (with the SW Distribution feature) can NOT communicate with ANY of the elements of the NetView DM Family. On the other side, OS/2 Warp Server code being CID enabled can be installed using NetView DM products. SW packages (Change Files) created with the existing elements of the NvDM Family can NOT be reused/redistributed with OS/2 Warp Server.

Coexistence: OS/2 Warp Server (with SW Distribution feature) can coexist with, NvDM/2 CC Server, NvDM/2 CC Client for OS/2, NvDM/2 Remote Administrator, NvDM/2 CC Client for Windows. OS/2 Warp Server can NOT coexist with, NvDM Agent for OS/2, NvDM Agent for Windows.

DISTRIBUTED CONSOLE ACCESS FACILITY (DCAF)

Almost all DCAF capabilities are integrated into OS/2 Warp Server with the exception of the Security scheme, the File Transfer and the Reboot WS capability that have not being integrated to avoid duplication with NetFinity capability. SNA transport and third party security capability are not included in OS/2 Warp Server.

Migration: No migration is provided from DCAF to OS/2 Warp Server.

Interaction: OS/2 Warp Server can not take the control of a workstation where DCAF targets are installed and vice-a-versa.

Coexistence: OS/2 Warp Server can coexist with DCAF Controller and Gateway. OS/2 Warp Server can NOT coexist with DCAF Target.

BACKUP AND RECOVERY

The support comes with an innovative design which includes a strikingly easy-to-use GUI with object oriented drag-and-drop technology which integrates into the OS/2 Warp Server desktop. Hints, guides and the pipeline simplify the establishment of backup strategies and reduce the learning curve. Sounds in the form of .WAV files may be associated with any system event providing you with the ability to audibly describe them.

OS/2 Warp Server also provides full data management capabilities which allow you to track, inventory, and maintain backup sets. Volumes can be transferred in from other OS/2 Warp Servers or archived out for off-site storage. Data stored on volumes can be listed for file level restoration and volume usage can be graphically display enabling you to determine available free space before backing up.

Backup can be planned ahead of time to include: all files; specified files; or just those files that have changed since last time. Backups can be scheduled to take place automatically at given times or frequencies, even if other work is taking place at the time. Manual backups can be taken at any time. Backed-up data may be compressed at densities 2-1 or greater, and the procedures manage the volumes created relieving the user of the need to do this. Files may be restored by simply clicking on the ones desired -- the rest is automatic.

For disaster recovery you can build a bootable set of diskettes to fully recover OS/2 Warp Server and all its files and ACLs for many of the supported media. Storage devices supported: diskette, SCSI tape, read/write optical, hard disk or LAN (Alias) plus remote mounted drives, and ADSM services. OS/2 Warp Server can be backed up to AdStar Distributed Storage Manager (ADSM/2) on a variety of host (OS/2, AIX, AS/400, MVS, HP, DEC). ADSM/2 can be used to backup end-user systems.

In short, the backup and recovery support is flexible, easy and largely automated. There is no more excuse for not being able to access vital data.

SUPPORTED BACKUP DEVICES

The following is a partial list of the tape devices supported by the Backup and Recovery function of OS/2 Warp Server. Unlike NT which only supports tape, OS/2 Warp Server supports backups to diskette, SCSI tape, read/write optical, hard disk or LAN (Alias) plus remote mounted drives, and ADSM services.

REMOTE ACCESS

The remote access services provided in OS/2 Warp Server extends the "Office LAN" to remote users. Using dial connections (asynchronous, synchronous, ISDN, or X.25 PAD), remote users can access LAN (Ethernet or Token-Ring) resources as if they were physically connected to the LAN.

The server capabilities provides the security and routing functions for the remote access clients. It also provides support for LAN workstations to dial off the LAN and connect to remote access clients or to another OS/2 Warp Server or to a LAN Distance Connection Server Version 1.1. The remote access services can support multiple simultaneous remote connections. The number of connections depends on the PC hardware, communications adapter, and type of remote connectivity. For example, using four Star Gate Avanstar(8) 200 Asynchronous Communications adapters in a 486 33 MHZ PC, up to 64 simultaneous asynchronous communications sessions can be supported.

Provided with OS/2 Warp Server are two remote access clients which allow for an OS/2 or Windows PC to dial into the LAN and access network resources. The remote access client provides transparent access for most File and print servers, such as: IBM LAN Server, Novell NetWare, Artisoft LANtastic, Banyan VINES, Microsoft LAN Manager. Database servers such as IBM DB2/2. Communications applications such as Communications Manager/2 or PC 3270. Mail applications, such as Lotus cc: Mail. Productivity applications, such as: Lotus Notes, IBM Person-to-Person/2, IBM Time and Place/2. Remote Control applications, such as IBM DCAF, Ocean Isles Reach Out, and Poly PM.

In addition, the remote access client allows one remote access client PC to connect to another remote access client PC and establish a virtual LAN. This could be used to allow file and print sharing between two PCs using peer networking products such as Artisoft LANtastic, LAN Server Peer services or Windows for Workgroups.

ENHANCED TCP/IP SUPPORT

TCP/IP Services provides Dynamic IP which simplifies both IP host network access and IP network administration and overcomes many of the inherent weaknesses of traditional IP networks. Consequently, Dynamic IP facilitates smooth network operation and change. It is also well suited for supporting the networking of mobile hosts. Dynamic IP utilizes only open standard networking technologies. Therefore, Dynamic IP hosts are fully compatible with and fully interoperate with existing IP network hosts.

Dynamic IP hosts -- those hosts with IBM Dynamic IP client software installed -- automatically configure themselves to access IP networks without requiring predefined information about the network addressing scheme or the availability of routers, name servers, etc. at the point of network attachment. Hosts are now free to move about the network and attach at arbitrary points without user or administrator intervention. Dynamic IP also enables other hosts in the network to locate Dynamic IP hosts at their current points of attachment by maintaining always - current host name to IP address mappings in the Domain Name System (DNS). This "follow-me" feature of Dynamic IP is well suited for laptops and other mobile computers.

Dynamic IP greatly simplifies the job of assuring that IP hosts are configured for current network operation. It does this by providing configuration information about a network and its hosts from a central server. Because the current manual process of re-configuring hosts on a network is tedious, time consuming, error prone, and in some cases, disruptive to network operations. Dynamic IP can save administrators significant time, energy, and risk in instituting changes in IP networks. Further, because Dynamic IP hosts maintain their own DNS mapping in a (new, dynamic) DNS server, those DNS server entries become "self-maintaining," thus reducing the workload of administrators even further.

Dynamic IP reflects IBM's ongoing commitment to the use of open networking standards. All protocols employed by Dynamic IP conform to TCP/IP standards generated by IETF working groups and specified in official IETF "Request for Comments" documents, or RFCs. In fact, IBM provided leadership in the development of Dynamic DNS and co-authored the protocol specification. IBM's commitment to exclusive use of open standards in Dynamic IP networking products assures customers that Dynamic IP clients and servers will interoperate with TCP/IP products from other networking vendors.

Dynamic Host Configuration Protocol (DHCP) - DHCP provides a framework for passing configuration information to hosts on a TCP/IP network. DHCP is based on the Bootstrap Protocol (BootP), adding the capability of automatic allocation of reusable network addresses and additional configuration options. DHCP captures the behavior of BootP relay agents, and DHCP participants can interoperate with BootP participants.

Dynamic DNS - Today's Domain Name Systems (DNS) servers support only queries on a statically configured database. The Dynamic DNS (DDNS) protocol defines extensions to the DNS to enable those servers to accept requests to update the DNS database dynamically. These extensions provide support for adding and deleting a set of names and associated resource records within a single zone atomically. DNS security extensions are used in DDNS to authenticate hosts that request to enter or change entries in the DDNS server database. **IBM is the first company to introduce products which support Dynamic DNS and associated DNS security extensions.**

Multiple TCP/IP applications are supported:

- PING, DHCP, Web Explorer, Ultimail Lite, Gopher Client, News Reader/2, Telnet PM, PMANT, FTPPM, LPR/LPD, SNMP, PPP (Client)

We have added the ability to support 1000 sessions on a single adapter.

IBM OS/2 WARP SERVER ADVANCED

IBM OS/2 Warp Server Advanced has the same features and functions as OS/2 Warp Server, with the following additional features and functions.

High Performance File System (HPFS386) - This is non-FAT file system and provides a higher level of performance than OS/2's HPFS. The HPFS supports partition sizes up to 64 gigabytes. The HPFS gets the most out of the server machine, protecting your hardware investment.

Fault Tolerant - The RAID 1 implementation, available for HPFS partitions, allows for the mirroring of disks to provide backup in the event of a system problem. Hot swappable disks in a disk array are supported provided they are supported by the hardware. Uninterrupted Power Supply (UPS) systems are supported for momentary power outages. Additional RAID 0-5 support is available through additional products. OS/2 Warp Server Advanced supports high availability in the event of a hardware or power failure.

Enhanced Pentium optimization - OS/2 Warp Server Advanced takes advantage of high performance hardware servers protecting your investment in Pentium equipped hardware.

Disk Limits - Allows the administration of limits on server disk resources at the subdirectory level to insure users do not exceed their authorized allocation of file space. Thresholds can be set to notify a user prior to exceeding the limit. By setting appropriate limits a user who might use all the servers disk space will be controlled, and will be the only user experiencing an apparent of space condition. Without Disk Limits, all users would experience an out of disk space, or "disk full" message with this previous scenario. Disk limits provided by OS/2 Warp Server Advanced, Version 4, provides DASD control by the LAN Administrator reducing disk full errors.

CLIENTS SUPPORTED

We currently provide various levels of support for all the major clients in the industry. The direction is to be an open server operating system solution and therefore provide equality amongst all the clients supported. This is a great challenge, especially when we consider the number of Microsoft clients and how they are all different. So clients that aren't supported by all of the functions incorporated in OS/2 Warp Server today will be supported as updates to the product are made. Macintosh clients are supported with LAN Server for Macintosh and AIX clients are supported with the PC Connection feature of AIX.

PRESS QUOTES

Since we announced the beta of this product, we have been receiving nothing but very favorable press from the press, analyst, consultants, resellers and customers. We have provided a few of those quotes so you will know what others like you, are saying about OS/2 Warp Server.

POSITIONING

MARKET POSITIONING

IBM OS/2 Warp Server is a simple to install, integrated, one-box comprehensive server operating system solution that has a broad market appeal from a small business or workgroup, to a network-savvy enterprise company. OS/2 Warp Server is easy to administer, provides a stable operating environment, is a low cost solution and provides investment protection with which you can grow. OS/2 Warp Server is the premier application server platform which provides a foundation for growth for customers of all sizes. For the small business or workgroup, it is a complete solution in a box. For the large enterprise it is the premier application server platform that adds significant value to existing established networks.

IBM OS/2 WARP FAMILY

OS/2 Warp Server is the latest announcement as part of an ongoing OS/2 product strategy, providing a family of products built on the robust 32-bit operating system. OS/2 Warp was announced as a desktop offering and is targeted primarily at the consumer and SOHO market. In 1995 we announced OS/2 Warp Connect as the premier connected client in the industry. OS/2 Warp Connect includes a rich variety of network connectivity options and also provides peer to peer capabilities. On February 26th we will announce OS/2 Warp Server and OS/2 Warp Server Advanced, the third member of the OS/2 Warp family. OS/2 Warp Server was specifically designed to be the premier application server operating system solution for any sized business. The functional components included in OS/2 Warp Server were chosen to address those networking requirements the vast majority of businesses have, and to serve as a strong platform for the advanced server applications offered by IBM and other software vendors. Later this year we will announce our Directory and Security Server offering to extend the capabilities of OS/2 Warp Server with global directories and Kerberos security for large enterprise customers.

CROSS PLATFORM SOLUTION

OS/2 Warp Server and LAN Server 4.0 are the only server operating system offerings which provide a solution that is scalable across multiple platforms (OS/2, AIX, AS/400, VM and MVS). This scalability enables a single client to access all of the servers as a total and complete system. LAN Server/400 is a hardware and software implementation that provides competitive performance across the LAN. LAN File Services/ESA or LAN Server for MVS and VM should be viewed as a complement to OS/2 Warp Server which extends the LAN environment by enabling transparent access to System/390 storage resources.

PRICING

OS/2 WARP SERVER

The suggested retail price for OS/2 Warp Server is \$629.00.

New key terms and conditions - with OS/2 Warp Server, IBM is enhancing the use-based charging structure. Access to and use of the server functions are charged for, based on the number of Registered Users, each of whom may gain access via any supported client whether it is shipped with OS/2 Warp Server or not. Customers may use client code that has been preloaded on a hardware base for example, providing greater flexibility. Acquisition of a single Use-Based Feature entitles the user to access and use one or many OS/2 Warp Servers or other accessible IBM servers within the enterprise. Client code may be distributed to and installed on any system without incurring Additional License charges.

This use-based approach to server functionality is consistent with the latest industry trends and is considered more equitable than the distributed feature alternative, particularly in a mixed vendor environment.

Use of software or hardware that reduces the number of users directly accessing or utilizing the Services (sometimes called "pooling" or "multiplexing") does not reduce the number of Use-Based Features required. The required number of Use-Based Features required equals the number of distinct inputs to the pooling or multiplexing software or hardware "front end".

FIRSTSTEP PACKAGE - The OS/2 Warp Server Firststep package is being offered as a convenient starter package for new local area network customers. Firststep includes OS/2 Warp Server along with 10 Use-based Features. The suggested retail package for Firststep is \$829.00.

OS/2 WARP SERVER ADVANCED

The suggested retail price for OS/2 Warp Server Advanced is \$1,299.00.

The Use-Based charging structure applies to OS/2 Warp Server Advanced.

The Firststep package is not available with OS/2 Warp Server Advanced.

TRAINING/SUPPORT

EDUCATION PLAN

There are a variety of educational offerings for OS/2 Warp Server based on audience and education requirements (read from chart).

SUPPORT PLAN

There is no 60 day free support.

Installation and Technical Support are provided by the Personal Systems Support Family. For more information on services available, please contact Personal Systems Support Family Project Office at 1-800-799-7765 or the IBM Support Family Information Center at 1-800-742-9235.

The IBM 30-day, money-back guarantee applies.

COMPETITION

COMPETITIVE FEATURE LIST

This competitive feature list is being provided to highlight the key features required of a server operating system and how OS/2 Warp Server is addressing these features when compared to the competition. Drag and Drop Administration through Backup Support are key features required for daily operations. The administration and management of your servers and network. From Integrated Systems Management to Dynamic Domain Name Services, these features address the growing requirements of application servers in a customer network. The key point to be made is OS/2 Warp Server is a Complete Application Server Operating System Solution

THE ADDED VALUE SERVER SOLUTION

OS/2 Warp Server is raising the bar on the competition by providing a complete server operating system solution. A solution which addresses the requirements of a growing and changing server marketplace. Providing the required features and functions to reduce the cost of ownership of a local area network. A leading application server platform to build on which addresses the shift in the server market place from simple file and print. An OPEN server operating system solution which works with what you currently have, adheres to OPEN industry standards and adds value to your existing networks without adding cost or complexity (No prerequisite products required, No additional products required, No additional hardware required - single server, No additional client access charges - single client).

CUSTOMER BENEFITS - Tell them what you told them!

Summarize the benefits to the customer based upon the solution the OS/2 Warp Server provides.